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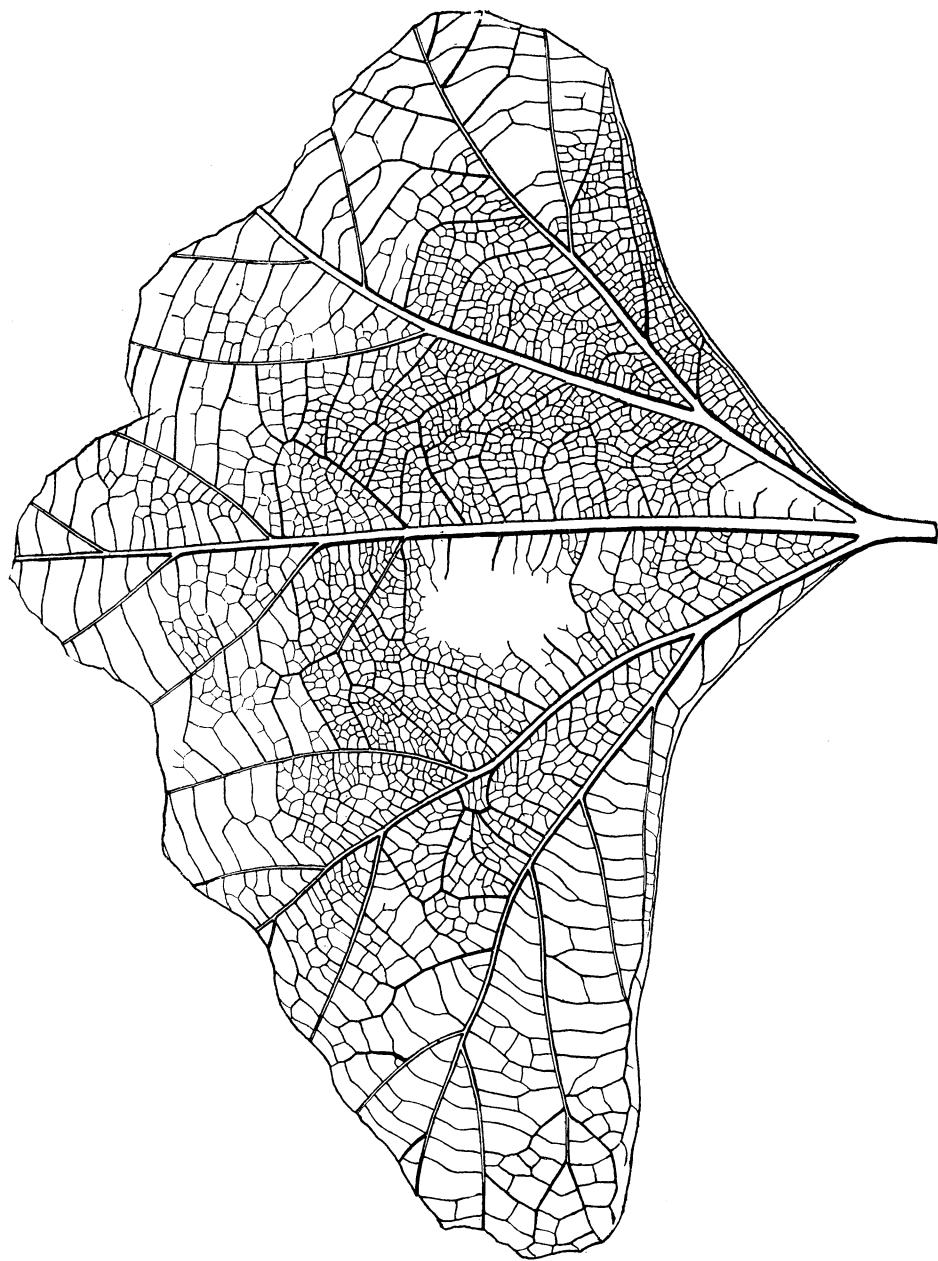
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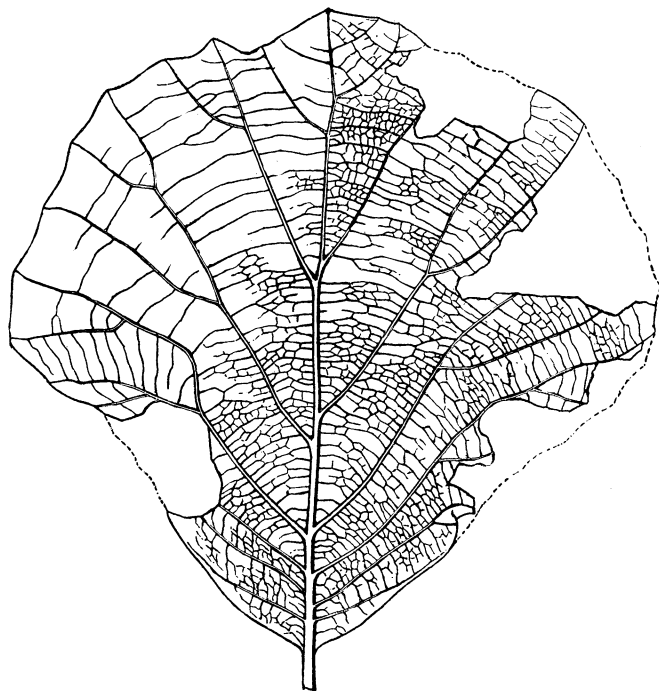
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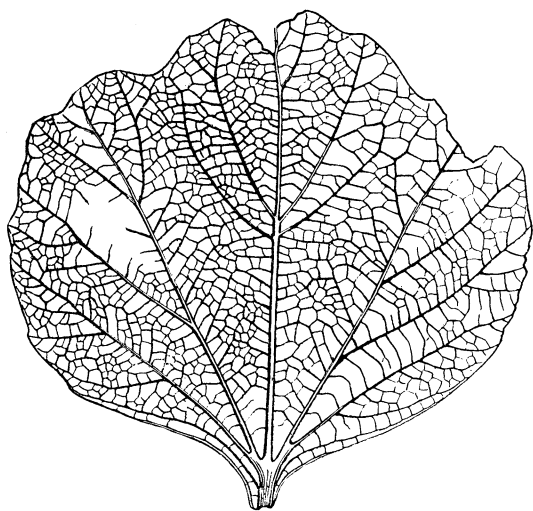
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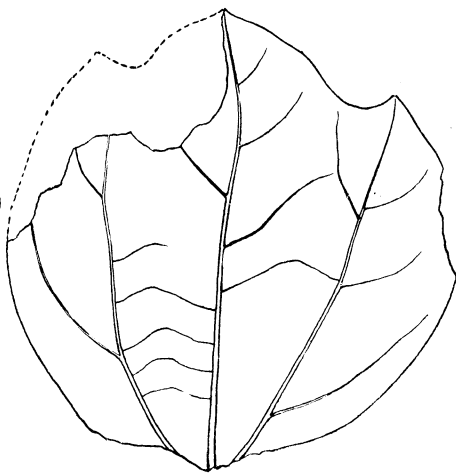




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FIG. 1. PROTOPHYLLUM QUERCIFORME HOLLICK.

FIG. 2. CISSITES PLATANOIDEA HOLLICK.

FIG. 3. CISSITES ACUTILOBA HOLLICK.

States, compiled by the Editor of Richard's Botanical Dictionary," Albany, 1817. The author of this work is reported to have been Prof. Amos Eaton. Rafinesque's review is printed in the "American Monthly Magazine," 1: 426-430, September, 1817, where among his criticisms he remarks, "He (Eaton) has not adopted the good genera *Chimaphila* Pursh," etc.

### Descriptions of new Leaves from the Cretaceous (Dakota Group) of Kansas.\*

BY ARTHUR HOLLICK.

(PLATES 236, 237.)

During the past year one of the students † at Columbia College was engaged under my direction in overhauling and naming the Dakota Group material in the Geological Museum, with instructions to put aside all specimens which could not be satisfactorily identified. I take pleasure in saying that the specimens now under consideration were the only ones, except a few fragments not capable of being satisfactory determined, which he found necessary to thus separate; also to state that they apparently represent three species and one variety new to the horizon, and to give him credit for having recognized them as possessing characters different from those of any published plates or descriptions with which they could be compared. All are from the vicinity of Fort Harker, Kans.

#### SASSAFRAS (ARALIOPSIS) Lesq.

This subdivision of the genus *Sassafras* was made by Lesqueux to contain a number of leaves which might be classed with either *Sassafras* or *Aralia*. Their systematic position is yet problematic, but they are included under the former genus in his posthumous Flora of the Dakota Group, edited by F. H. Knowlton. (Monog. xvii. U. S. G. S., 1891.)

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\* Read by title at the meeting of the New York Academy of Sciences, February 11, 1895.

† Mr. Chas. R. Pollard, now Assistant Curator of the National Herbarium.

SASSAFRAS (*ARALIOPSIS*) *DISSECTUM* SYMMETRICUM n. var.

(Plate 236.)

Differs from *S. (A.) dissectum* Lesq. Cret. & Tert. Fl. 57; Fl. Dak. Gr. 101. *pl. 14. f. 1*, in its symmetrical branching, especially that of the lateral primaries, which start from the base of the leaf exactly opposite to one another and fork at an equal distance above; also in the fact that the blade of the leaf is not decurrent along the petiole, but ends at the point where the lateral primaries branch from the midrib.

I was at first inclined to describe this as a new species, but the imperfect condition of the upper portion of the specimen seemed to render this inadvisable, and its substantial agreement in essential particulars with *S. (A.) dissectum* decided me to class it as a variety of that species.

## CISSITES HEER.

This genus was founded by Heer, to include leaves presumably allied to *Cissus*, but subsequently made by other authors to include leaves having more or less resemblance to *Vitis*, *Platanus*, *Sassafras*, etc.

## CISSITES PLATANOIDEA n. sp.

(Plate 237. f. 2.)

Leaf symmetrical,  $2\frac{3}{4}$  in. long by  $2\frac{3}{4}$  in. broad, sub-orbicular to fan-shaped in outline, abruptly decurrent at base, obscurely 3-lobed; margin undulate or obscurely dentate; nervation 3-palmate, craspedodrome; midrib abruptly thickened below the point where the lateral primaries branch off, also to a lesser extent below the point where the upper secondaries branch off; secondaries clustered together in two pairs above the middle of the midrib, the upper pair extending to the margins, the lower pair merging gradually into the tertiary nervation, of which it may perhaps be considered to form a part; the latter forming polygonal meshes, well defined; lateral primaries branched mostly from below, obscurely from above near the extremities and abruptly thickened below the point where the first secondaries branch off.

This leaf is suggestive of species which have been described under the genera *Sassafras* (*S. obtusum* Lesq., etc.), *Platanus* (*P. Heerii* Lesq., *P. obtusiloba* Lesq., etc.), *Cissites* (*C. ingens* Lesq., etc.),

and *Parrotia* (*P. Canfieldi* Lesq.), but is clearly distinct from any of these, and rather than erect a new genus I have decided to class it with *Cissites* and to indicate other characteristics in the specific name.

CISSITES ACUTILOBA n. sp.

(Plate 237, f. 3.)

Leaf  $2\frac{3}{4}$  in. long by  $2\frac{3}{8}$  in. broad, sub-orbicular in outline, three lobed, lobes acute; nervation 3-palmate; lateral primaries long, almost equalling the midrib, somewhat incurved, margin entire.

Differs from *C. Harkerianus* Lesq., with which it is closely allied, in its more rounded outline, longer lateral primaries and acute lobes and apex.

PROTOPHYLLUM Lesq.

This genus was founded by Lesquereux to include certain leaves of an apparently synthetic type, some of which had been described under the genera *Credneria* and *Pterospermites*. The systematic position of the genus cannot yet be said to be definitely determined, although in Fl. Dak. Gr. *l. c.* it is classed in the Sterculiaceae. Whatever its systematic position may be there is no doubt that our species belongs to the genus as defined.

PROTOPHYLLUM QUERCIFORME n. sp.

(Plate 237, f. 1.)

Leaf  $3\frac{1}{2}$  in. long by almost  $3\frac{1}{2}$  broad at middle, rhombic-ovate in outline, rounded above, more or less abruptly narrowed from middle to base, slightly acuminate at apex; margin undulate-dentate; nervation craspedodrome; lower secondaries relatively slender, crowded together, branching from the midrib at an obtuse angle; median ones stronger, more distant, branching from the midrib at a more acute angle, forked two-three times; upper ones again slender and branching as before at a more obtuse angle; tertiary nervation uniform, slightly curved outward, simple, fine, and at right angles to the secondaries throughout.

This leaf somewhat resembles *P. Haydenii* Lesq., but differs in its smaller size, narrowed base and more rounded apex. The superficial appearance suggests one of our broad leaved oaks, as I have indicated in the specific name.

In conclusion I wish to acknowledge my indebtedness to Dr. F. H. Knowlton of the United States Geological Survey for criticisms and references in nomenclature and synonymy.

## A Preliminary List of the North American Species of Malpighiaceae and Zygophyllaceae.

By ANNA MURRAY VAIL.

### MALPIGHIACEAE.

1. JANUSIA A. Juss. Monog. Malp. 349. *pl.* 21. 1843.  
 JANUSIA GRACILIS A. Gray, Pl. Wright. 1: 37. 1852.  
 DISTR. Arizona, New Mexico, Texas and Mexico.
2. ASPICARPA Rich. in Mem. Mus. Par. 2: 398. *pl.* 1. 1815.  
 1. ASPICARPA HYSSOPIFOLIA A. Gray, Bost. Journ. Nat. Hist. 6: 167. 1850.  
 DISTR. Texas, New Mexico and North Mexico.
2. ASPICARPA LONGIPES A. Gray, Pl. Wright. 1: 37. 1852.  
 DISTR. Texas, New Mexico, southern Arizona and North Mexico.  
 Very close to *A. humilis* (Benth.), from which it differs mainly in its trailing, and decumbent habit and somewhat larger leaves.\*
3. THRYALLIS L. Sp. Pl. Ed. 2, 554. 1763. Not *Thryallis*  
 Mart. Nov. Gen. 3: 77. *pl.* 230, 231. 1829.  
 THRYALLIS ANGUSTIFOLIA (Benth.) Kuntze, Rev. Gen. Pl. 89. 1891.  
*Galphimia angustifolia* Benth. Bot. Sulph. 9. 1844.  
*Galphimia linifolia* A. Gray, Bost. Journ. Nat. Hist. 6: 166. 1850.  
 DISTR. Western Texas to New Mexico, Lower California and Mexico.  
 Very variable. The broader leaved form is  
 THRYALLIS ANGUSTIFOLIA OBLONGIFOLIA. (A. Gray.)  
*Galphimia linifolia*  $\beta$  *oblongifolia* A. Gray, Pl. Wright. 1: 36 1852. It is found with the type and may possibly be a species.

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\* *Aspicarpa Hartwegiana* A. Juss. Arch. Mus. Par. 3: 598. 1843, is a synonym of *Gaudichaudia humilis* Benth. Pl. Hartw. 6. 1839, *vide* Kew Index.